This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

1-23. (Canceled)

24. (Currently amended) A method for isolating a nucleic acid molecule encoding a homologue of human histamine H3 receptor comprising the steps of:

(a) mixing a nucleic acid molecule comprising a nucleotide sequence encoding human histamine H3 receptor comprising the~~a~~n amino acid sequence of SEQ ID NO:7 with a sample comprising a nucleic acid molecule encoding a homologue of human histamine H3 receptor;

(b) allowing said nucleic acid molecule comprising a nucleotide sequence encoding ~~a~~ human histamine H3 receptor to hybridize with said nucleic acid molecule encoding a homologue of human histamine H3 receptor to form a hybridized nucleic acid complex;

(c) isolating the hybridized nucleic acid complex; and

(d) purifying the nucleic acid molecule encoding a human histamine H3 receptor homologue,

wherein said histamine H3 receptor homologue comprises biological activity of ~~a~~ human histamine H3 receptor comprising the~~a~~n amino acid sequence of SEQ ID NO:7, wherein said biological activity comprises binding to a histamine H3 receptor-specific ligand, cyclic AMP induction in the presence of a histamine H3 receptor antagonist, inhibition of adenylate cyclase in response to histamine, or incorporation of GTP-gamma-S.

25. (Currently amended) The method according to claim 24 wherein said nucleic acid molecule comprising a nucleotide sequence encoding human histamine H3 receptor comprises the ~~has a~~ nucleotide sequence of SEQ ID NO:5 or SEQ ID NO:6.

26. (Canceled)

27. (Currently amended) A method for producing a homologue of human histamine H3 receptor comprising the steps of:

(a) mixing a nucleic acid molecule comprising a nucleotide sequence encoding human histamine H3 receptor comprising the~~an~~ amino acid sequence of SEQ ID NO:7 with a sample comprising a nucleic acid molecule encoding a homologue of human histamine H3 receptor;

(b) allowing said nucleic acid molecule comprising a nucleotide sequence encoding human histamine H3 receptor to hybridize with said nucleic acid molecule encoding a homologue of human histamine H3 receptor to form a hybridized nucleic acid complex;

(c) isolating the hybridized nucleic acid complex; and

(d) purifying the nucleic acid molecule encoding a human histamine H3 receptor homologue; and

(e) recombinantly expressing said nucleic acid molecule encoding a human histamine H3 receptor homologue,

thereby producing said human histamine H3 receptor homologue, wherein said histamine H3 receptor homologue comprises biological activity of a human histamine H3 receptor comprising the~~an~~ amino acid sequence of SEQ ID NO:7, wherein said biological activity comprises binding to a histamine H3 receptor-specific ligand, cyclic AMP induction

in the presence of a histamine H3 receptor antagonist, inhibition of adenylate cyclase in response to histamine, or incorporation of GTP-gamma-S.

28. (Currently amended) The method according to claim 27 wherein said nucleic acid molecule comprising a nucleotide sequence encoding human histamine H3 receptor comprises the ~~has a~~ nucleotide sequence of SEQ ID NO:5 or SEQ ID NO:6.

29-33. (Canceled)

34. (Currently amended) The method according to claim 27 wherein said homologue has a greater affinity for a ligand than the polypeptide having the~~an~~ amino acid sequence of SEQ ID NO:7, wherein said ligand is histamine or methylhistamine.

35. (Currently amended) The method according to claim 27 wherein said homologue has a reduced affinity for a ligand than the polypeptide having the~~an~~ amino acid sequence of SEQ ID NO:7, wherein said ligand is histamine or methylhistamine.

36-37. (Canceled)

38. (Currently amended) A method for detecting the presence of a nucleic acid molecule encoding a human histamine H3 receptor in a sample comprising nucleic acid molecules, said method comprising the steps of:

(a) mixing said sample with a nucleic acid molecule comprising the~~having a~~ nucleotide sequence of SEQ ID NO:5, the~~a~~ nucleotide sequence of SEQ ID NO:6, the~~a~~ nucleotide sequence of SEQ ID NO:8, or the~~a~~ nucleotide sequence encoding SEQ ID NO:7; and

(b) detecting hybridization of said nucleic acid molecule to a nucleic acid molecule in said sample,

wherein said nucleic acid molecule encoding a human histamine H3 receptor comprises biological activity of a human histamine H3 receptor comprising the~~an~~ amino acid sequence of SEQ ID NO:7, wherein said biological activity comprises binding to a histamine H3 receptor-specific ligand, cyclic AMP induction in the presence of a histamine H3 receptor antagonist, inhibition of adenylate cyclase in response to histamine, or incorporation of GTP-gamma-S.

39. (Canceled)

40. (Currently amended) A kit for detecting the presence of a nucleic acid molecule encoding a human histamine H3 receptor, wherein said nucleic acid molecule comprises the~~a~~ nucleic acid sequence of SEQ ID NO:5, 6, or 8, or wherein said human histamine H3 receptor comprises the~~an~~ amino acid sequence of SEQ ID NO:7, wherein said nucleic acid molecule encoding a human histamine H3 receptor comprises biological activity of a human histamine H3 receptor comprising the~~an~~ amino acid sequence of SEQ ID NO:7 and optionally a container, wherein said biological activity comprises binding to a histamine H3 receptor-specific ligand, cyclic AMP induction in the presence of a histamine H3 receptor antagonist, inhibition of adenylate cyclase in response to histamine, or incorporation of GTP-gamma-S.

41-52. (Canceled)

53. (Currently amended) The kit of claim 40 further comprising a means for detecting said biological activity of a human histamine H3 receptor comprising the~~an~~ amino acid sequence of SEQ ID NO:7

54. (Previously presented) The kit of claim 53 wherein said means is a histamine H3 receptor-specific ligand.

55. (New) The method of claim 24 wherein said histamine H3 receptor-specific ligand comprises histamine or methylhistamine.

56. (New) The method of claim 27 wherein said histamine H3 receptor-specific ligand comprises histamine or methylhistamine.

57. (New) The method of claim 38 wherein said histamine H3 receptor-specific ligand comprises histamine or methylhistamine.

58. (New) The method of claim 40 wherein said histamine H3 receptor-specific ligand comprises histamine or methylhistamine.

59. (New) The method of claim 54 wherein said histamine H3 receptor-specific ligand comprises histamine or methylhistamine.

60. (New) The method of claim 24 wherein said histamine H3 receptor antagonist comprises thioperamide.

61. (New) The method of claim 27 wherein said histamine H3 receptor antagonist comprises thioperamide.

62. (New) The method of claim 38 wherein said histamine H3 receptor antagonist comprises thioperamide.

63. (New) The method of claim 40 wherein said histamine H3 receptor antagonist comprises thioperamide.